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ABSTRACT

In Fall 1980, a follow-up survey was conducted of students who had graduated, withdrawn from or otherwise left career/technical programs at British Columbia's 14 community colleges and institute of technology. The study sought to determine: (1) why students undertook career/technical programs; (2) if and for what reasons students failed to complete their programs; (3) employment information on program leavers; (4) where and how soon after leaving the colleges students were employed; (5) reactions of students to selected characteristics of post-secondary education; and (6) students' future educational goals. Of the 11,456 students who were surveyed, 57% responded. The study revealed that adult and college-age students cited acquisition of vocational skills as their major objective in enrolling. Family obligations, completion of objectives, change of career goals or disillusionment with their program were the primary reasons for discontinuance. Of the employed students, 75% held jobs related to their training. Males and females differed in their employment status (i.e., more males held full-time jobs), in earning power (i.e., women more frequently earned less than $1,500 per month), and in type of occupation (i.e., males dominated in engineering, sales, and product fabricating, while females dominated in health-related and clerical jobs). The study report discusses findings in terms of geographic decentralization, equity, and program quality. (KL)

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A Follow-up Study of Career/Technical Students from the British Columbia Community Colleges and Institutes

Summary Report

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Introduction

The post-secondary educational system in British Columbia incorporates a network of fourteen community colleges, six provincial institutes and three public universities. The colleges offer a comprehensive curriculum, which includes academic courses, which carry university transfer credit, career/technical programs, vocational programs, upgrading and adult basic education, and continuing education courses. The provincial institutes are more specialized in curricular design, offering courses and programs which are essentially employment oriented.

Over the past fifteen years, from 1965-1980, there have been a number of studies directed at students from the academic programs, particularly after their transfer to universities.[1] This emphasis is understandable in the context of the need for colleges to establish their academic credibility during the early years of their operation. However, only limited attention has been paid to students from other programs, particularly those within the career/technical area.

In October 1979, 77,102 students were enrolled in the college and institute system, of which 25,288, or approximately one-third, were involved in career/technical courses. Unlike vocational programs, which are normally short term, heavily skill oriented and often man-power funded, career/technical programs are one or two years in length, usually include a general education as well as a skill component, and often lead to the award of a specific credential. These programs are variously referred to as "technological," "technical," "career" or "para-professional."

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[1] B.C. Community Colleges Articulation Studies, B.C. Research. Vancouver, B.C. 1975-1981.

Largely because of their design and purpose, vocational programs tend to be monitored by governmental agencies at the federal and provincial levels. Quite apart from the indirect federal funding which sustains these programs they are essential ingredients in manpower planning models. On the other hand, career/technical programs are often regionally oriented and have less formal sponsorship. While some are monitored by professional associations there has as yet been no systematic effort by any agency to focus attention upon these programs.

The study which is briefly described in the following pages represents an attempt, at the provincial level, to examine certain aspects of the career/technical programs in British Columbia[2].

Purpose of the Study

After consultation with a number of relevant groups, including representatives from the institutions themselves, the following objectives for the study were developed:

a) To determine the reasons why students undertake career/technical programs.

b) To determine if, and for which reasons, students fail to complete their programs.

c) To ascertain the extent and type of employment obtained by students from these programs.

d) To identify where, and how soon after leaving the institution, the students were employed.

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[2]For further detailed results, see Jones, G., Forrester, G. and Dennison, J. A Follow-up Study of Career/Technical Students from the British Columbia Community Colleges and Institutes: Technical Report. B.C. Research, Vancouver, B.C. August, 1981.

f) To obtain the reactions of students to selected characteristics of post-secondary education.

g) To explore students' future educational plans.

It was decided to examine these objectives at the provincial level, by institution and by program.

Procedure

The study involved all institutions in the province which offered programs under the "career/technical" classification. These included all fourteen community colleges and the British Columbia Institute of Technology.

The target population for the study was determined in the following manner. The enrolment files of career/technical programs in all relevant institutions were examined as of September 1980, and compared with the same files from September 1979, to determine the names of all students who had graduated, withdrawn from, or otherwise left the institutions during the intervening period. Students still enrolled in their original or other institutions, in any program in September 1980 were eliminated from the study.

The eventual target population consisted of 18,554 full and part-time students from twenty different program clusters. The procedure was to contact these students through an Information Sheet, which contained questions designed to answer the study objectives noted above. With one exception,[3] it was decided to attempt to contact all students from all programs, resulting in a final sample population of 11,456 students.

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[3]Due to the large number of students involved, the B.C.I.T. evening population was systematically sampled.

The final return rate was 48%, involving 5,230 responses[4]. However, as 1,652 (15%) of the mailings were returned by the Post Office as "undeliverable," the effective reponse rate of usable returns was 57%.

The response rate by institution ranged from a low of 38% at North Island College to 66% at the British Columbia Institute of Technology. The range of response rates by program was from 34% in Adult Basic Education to 68% in Electrical/Electronics.

The final data were submitted to statistical analyses to determine the degree, if any, of response bias, by appropriate variables. In addition, all response cohorts were further analysed to elicit the significance of any differences which occurred.

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[4]Vancouver Community College surveyed their own students, using a survey instrument similar to that used in the provincial study. Responses from their survey were included in the results reported here, bringing the total number of respondents up to 5,437.

Results

Unlike previous studies[5] conducted with academic program students where only limited differences were found among the various institutions, the career/technical students displayed considerable inter-institutional and inter-program variability. Consequently, the results which follow are generalized to some extent. While the focus of the results is at the provincial level, reference is made to critical variations by college and program when appropriate.

1. Table 1 gives the distribution of responses by age and sex. While two thirds of the students were enrolled on a part-time basis, the greater proportion of this group were of adult age (25 years of age and above).

In fact, two different "populations" of career/technical students emerged in the study. The first group were college age, largely full-time students, enrolled in a full program of study leading to the award of a specific credential. The other "population" consisted of adult age students, usually part-time, taking one or two courses designed to upgrade current job skills.

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[5] Jones, G., Forrester, G., and Dennison, J. A Follow-up Study of Adademic, Non-Transfer Students from the British Columbia Community Colleges. B.C. Research. Vancouver, B.C. June 1980.

Table 1

PART-TIME/FULL-TIME ENROLMENT,
by Sex and Age*
(In percentages)

	Sex		Age		
	Male	Female	College	Adult	Total
Full-Time	33.7	30.4	61.8	16.5	32.0
Part-Time	66.3	69.6	38.2	83.5	68.0
TOTAL (N)	2353	2692	1729	3323	5052[a]

*Results not available from Vancouver Community College

a. May not equal sum of sex and age columns due to unknown or invalid classifications.

However, both the adult and college age students identified their prime objective in attending college as being acquisition of vocational skills (73%); only 14% and 11%, respectively, gave their first objective as "critical thinking" and a "general education."

Table 2 summarizes the more specific intentions of students in enrolling in post-secondary education. Again a wide variation between college and adult age students with regard to their program goals is evident. A similar difference was found with respect to previous work experience between the two student populations. While nearly half of the adult group had three or more years of work experience related to their training program, only 7% of the college age group fit this category.

Table 2

MAIN OBJECTIVE FOR ATTENDING INSTITUTION
by Sex and Age
(In percentages)

	Sex		Age		
	Male	Female	College	Adult	Total
Learn skills	31.6	27.7	44.9	21.2	29.5
Complete Certificate	9.6	10.5	8.0	11.4	10.2
Improve existing skills	31.9	33.7	13.5	43.3	32.8
Decide on career	10.0	11.8	19.7	6.3	11.0
Study till job available	1.4	0.5	0.6	1.1	0.9
Personal interest	12.0	13.0	7.7	15.1	12.5
Transfer to tech. institute	0.9	0.5	1.4	0.3	0.7
Transfer to university	2.1	1.6	3.1	1.2	1.8
Prepare for specialized education	0.4	0.4	0.9	0.1	0.4
Other	0.1	0.2	0.3	0.1	0.2
TOTAL (N)	2391	2682	1786	3293	5079[a]

a. May not equal sum of sex or age columns due to unknown or invalid classifications.

2. Fully half of the students admitted to not having completed all of the courses which they had originally intended to take. However, two thirds of those who sought a specific credential by enrolling in a full time program had completed all requirements.

In response to a question asking "incomplete" students to identify their reasons for discontinuance, most reported family obligations, completion of objectives, a change of career goals or disillusionment with program. Only 14% claimed to have found employment which prompted their withdrawal.

3. Table 3 summarizes the current activity engaged in by former career/technical students. It will be noted that the great majority were in full-time occupations. The highest employment rates were reported by former B.C.I.T. students, where almost 90% were in this category.

Students from Electrical/Electronics (college), Construction (B.C.I.T.), Nursing and Communication Arts were most likely to be engaged in full-time work, while the lower employment rates were from Business Administration, Legal and Social Services.

In an attempt to determine the relationship between students' particular programs and the nature of their subsequent employment, two techniques were used. Respondents were asked to state the degree of relationship, from their perception, and also to report their current job and occupational field. The research team then categorized the jobs reported, by occupational scale, and related these to the training program taken. Both techniques produced similar results.

Table 3

CURRENT ACTIVITY,
By Sex and Age
(In percentages)

	Sex		Age		
	Male	Female	College	Adult	Total
Employed full-time	77.0	59.9	67.1	68.2	67.8
Employed part-time	2.4	8.6	4.6	6.4	5.8
Employed (status unknown)	0.3	0.7	0.5	0.5	0.5
Employed and student	12.6	13.8	13.6	13.0	13.2
Student full-time	3.2	2.6	6.3	1.1	2.9
Student part-time	0.0	0.5	0.3	0.3	0.3
Student (status unknown)	0.1	0.7	0.3	0.5	0.4
Household/ Family Duties	0.0	7.3	1.9	5.0	3.9
Unemployed, but seeking job	3.2	3.9	4.8	2.9	3.6
Unemployed, and not seeking job	0.9	1.8	0.5	1.8	1.4
Other	0.2	0.2	0.2	0.2	0.2
TOTAL (N)	2454	2859	1861	3458	5320[a]

a. May not equal sum of sex or age columns due to unknown or invalid classifications.

Table 4 summarizes the students' current occupations. With respect to their relevance to the study program taken, a degree of relationship was found in approximately 75% of the cases. Only 24% took jobs unrelated to their training program. Of the latter group, just over a quarter reported an inability to find a related job while the remainder claimed inadequate training (33%) or preference for other kinds of work (30%).

A great majority (80%) of the respondents found employment within the region in which they took their training. When asked if they were willing to relocate in order to find a related job, only 22% would have no reservations about moving and 33% would reserve their decision depending upon the location. Adult female students were more likely to be included in the remaining "place bound" 45%.

4. In response to a question asking for factors important in choice of institution attended, the majority of respondents checked "close to home," "program available" and "reputation of institution." The last characteristic was particularly attractive to B.C.I.T. students. College students were inclined to report "low tuition", in addition to the other factors.

A second question asked students to record their degree of agreement with specific characteristics of post-secondary educational institutions.

High positive responses were given to "reasonable admission requirements," "low class sizes," "the opportunity for part-time study" and "the opportunity to remain in one's own community while studying." However, there was much lower endorsement of "teaching quality," "counselling effectiveness" and "up to date facilities."

Table 4

OCCUPATIONAL CATEGORY,
by Sex and Age
(In percentages)

CCDO No.	Occupation	Sex		Age		Total
		Male	Female	College	Adult	
11	Managerial, Administration	18.8	15.3	12.8	19.1	17.0
21	Natural Science, Engineer, Math	16.1	4.8	8.5	11.2	10.3
23	Social Sciences	0.9	4.4	1.7	3.2	2.7
27	Teaching	1.8	4.7	1.7	4.1	3.3
31	Medicine and Health	2.4	18.2	7.3	12.2	10.5
33	Artistic, Performing Arts	2.3	1.8	3.5	1.3	2.0
37	Sport and Recreation	0.5	1.0	1.1	0.5	0.7
41	Clerical	7.2	35.4	25.8	19.2	21.5
51	Sales	10.4	6.7	9.7	8.0	8.6
61	Service	6.0	2.9	6.3	3.5	4.4
71	Farming, Horticulture	1.0	0.4	0.5	0.8	0.7
73	Fishing, Hunting, Trapping	0.2	0.2	0.2	0.2	0.2
75	Forestry and Logging	2.2	0.6	2.4	0.8	1.3
77	Mining and Quarrying	0.4	0.0	0.3	0.1	0.2
81/82	Processing	3.2	0.6	2.9	1.4	1.9
83	Machining	0.7	0.0	0.3	0.4	0.3
85	Product Fabricating	9.2	0.4	5.0	4.6	4.7
87	Construction	6.1	0.0	2.7	3.1	3.0
91	Transport Equipment Operating	2.9	0.5	2.0	1.5	1.7
93	Material Handling	2.2	0.2	1.5	1.0	1.2
95	Other Crafts and Equipment Operating	1.8	0.9	0.8	1.6	1.3
99	Not Elsewhere Classified	3.9	0.7	2.8	2.0	2.2
	TOTAL (N)	2228	2305	1541	3001	4542[a]

a. May not equal sum of sex or age columns due to unknown or invalid classifications.

Apparently education had become an important part of the lives of many of the students as a great majority indicated the intention of continuing study either in their own or another field in the future. Conversely, less than 5% reported that they had no intention of pursuing any kind of further education.

5. In two respects the data indicated significant differences between male and female students. The differences were in employment status (Table 3) where males were more likely to hold full-time employment, in earning power (Table 5) which showed twice as many women as men earning less than $1,500 per month, and in the related area of occupation held.

Table 5

PRESENT SALARY
by Sex and Age
(In percentages)

	Sex		Age		
Monthly Salary	Male	Female	College	Adult	Total
Less than $1000	7.8	26.8	28.2	12.0	17.5
$1000 to $1399	21.9	35.7	41.7	22.0	29.0
$1400 to $1799	24.5	24.5	22.0	25.9	24.5
$1800 or more	45.7	13.0	8.1	39.9	29.0
TOTAL (N)	2194	2287	1535	2954	4490[a]

a. May not equal sum of sex or age columns, due to unknown or invalid classifications.

As shown in Table 4, there was little difference between the sexes in Managerial/Administration. Males dominated in categories such as Engineering related (16% to 5%), Sales (10% to 6%), and Product Fabricating (9% to 1%). Conversely, females were in the majority in Health related (18% to 2%) and Clerical (35% to 7%).

In more general terms career/technical students tended to fill occupational clusters such as Managerial/Professional (46%) and Clerical (21%) in much higher proportions than found in overall B.C. Labour Force Statistics for these categories (23% and 17%, respectively).

6. The Information Sheet provided an opportunity for respondents to offer any general comments. A total of 1752 students (32%) contributed to this section.

The comments tended to reinforce much of the data found in other questions; concerns with job opportunities, teaching and counselling; frustrations with bureaucratic elements, such as limitation of admissions, transferability of credit, and lack of clinical practice; and travel difficulties in commuting to college locations.

One additional piece of information from this section was the high proportion of students who had taken courses or programs in a number of different institutions, often in response to career changes.

Many of the respondents were highly supportive of the institutions and the opportunities which they provided in local regions. It appears that the impact of the colleges upon the lives of many individuals is impressive.

By subjective judgement, 20% of the responses were positive, 57% mixed or ambivalent, and 22% critical of particular aspects of the system.

Conclusions and Implications

1. Career/technical programs were designed either to prepare students for employment or to provide upgrading in job skills for those already employed. The results of this study reinforced this assertion. Students taking career/technical courses proved to be job oriented and their subsequent employment rates were impressively high. Conversely, the rate of voluntary unemployment from career/technical students was below the provincial average (Table 3).

While it would be unwise to conclude that the relationship between post-secondary education and employment is necessarily causal, the experience, per se, seems to be an important factor in an individual's employability. This study did, in fact, reveal a high degree of relationship between the students' specific programs and their eventual occupational category.

2. The data from the study underline the values incurred by decentralizing career/technical programs throughout the province and the post-secondary system. Geographic accessibility was clearly a critical factor in students' decisions to enrol in college programs.

Both the lack of geographic mobility evident with many students and the high percentage who obtained employment within their own regions, reinforced the wisdom of previous planning initiatives. While there are certain financial implications in decentralization, other benefits, perhaps, more than compensate for the costs involved.

It would be interesting to speculate upon the consequences of even limited decentralization of many of B.C.I.T.'s unique programs, outside the Lower Mainland; while much has been accomplished through extension services, there are several programs which cannot be placed under this category.

The tendency revealed in the study for many students to enrol in two or three different institutions during their educational life suggests that greater efforts might be made to articulate and co-ordinate the current complex provincial system of tertiary education, particularly with regard to transfer of credit.

3. The two relatively distinct "populations" of career/technical students, which emerged in the study, implies a need for post-secondary institutions to make adequate provisions for both (Table 1 and 3).

While many colleges have attempted to accommodate part-time, adult students it was evident that others provided only limited opportunities.

Enrolments in certain colleges were predominantly full-time, reflected by such patterns of attendance in programs of Electrical/Electronics, Office Administration, Registered Nursing, Personnel Services, Renewable Resources and Communication Arts.

The apparent need for upgrading courses also suggests that particular colleges might provide opportunity for employed people in their region through selected individual courses which upgrade job skills.

4. The relatively high percentage of students who fail to complete all courses, and the reasons given for doing so, implies a need for institutions to provide more intensive admissions counselling, and advice on competencies expected from students, program content and expectations of student achievement.

Moreover, the high percentage of students who expressed their future intentions regarding education presents an ongoing challenge for institutions in the area of lifelong education. Planning will demand high levels of imagination in curricular design, work-study and co-operative education, and occupational upgrading and personal development programming.

The conclusions reached in this study were consistent with the view that lifelong education is not confined to the young or socio-culturally advantaged.

5. The extent to which career/technical education programs can contribute to redressing some of the traditional inequalities between the sexes in employment must be largely speculative: while there were significant differences, to the advantage of males, with respect to employment rates and salary levels, other signs were more encouraging (Tables 3, 4 and 5).

The equivalent percentages of females in certain "less traditional" job categories, such as "Management and Administration," indicates hiring policies based on educational qualifications rather than sex.

However, if educational institutions are to become a factor in modifying the differences noted above it is clear that they must become more proactive, rather than reactive, to societal traditions with respect to the sexes in job training and job placement. The study provide little evidence that college programs had had any impact in this regard.

6. The data from the response sheets and from the large number of accompanying comments stressed the concern held by students with institutional reputations, the quality of teaching and counselling, and overall educational standards.

Evidently, students have high expectations with regard to the foregoing and are quick to react to any perceived inadequacies. Students demand both superior teaching skills and relevant practical experience from faculty. The implications for colleges with regard to the provision of programs for instructional improvement and professional upgrading are evident.

Counselling is an equally vulnerable position. Students commented upon their needs with respect to course content and requirements, study aid, job availability and even job placement.

The general impression was that students supported higher, not relaxed, standards. While particular institutions have built admirable reputations it was clear that constant efforts were necessary to ensure their continuance.

At the same time it should be noted that excellence in teaching and counselling were recognized and acclaimed by former students.

Final Comment

The study focussed much additional light upon the career/technical programs in the province and the students who enrol in them. The data reinforced several assumptions, exploded others, indicated some directions for the future and raised additional issues which must be addressed.

The conclusions emphasize the need for educational institutions to monitor both the changing student clientele and the pattern of the workforce which they will enter. The colleges emerged as very much community institutions, drawing from and placing students within their own regions. With the rapid evolution of the technological society the planning techniques of today will no longer guarantee success tomorrow.

Nowhere is this phenomenon more critical than for the educational institutions which supply a skilled workforce for the changing technological state.